



Louisville Metro Air Pollution Control District
850 Barret Avenue
Louisville, Kentucky 40204-1745



Federally Enforceable District Origin Operating Permit (FEDOOP)

Permit No.: O-1562-14-F

Plant ID: 1562

Effective Date: xx/xx/2014

Expiration Date: xx/xx/2014

Permission is hereby given by the Louisville Metro Air Pollution Control District to operate the process(es) and equipment described herein which are located at:

Coral Graphics Services, Inc.
4700 Commerce Crossings Drive
Louisville, KY 40229

The applicable procedures of District Regulation 2.17 regarding review by the U.S. EPA and public participation have been followed in the issuance of this permit. Based on review of the application on file with the District, permission is given to operate under the conditions stipulated herein. If a renewal permit is not issued prior to the expiration date, the owner or operator may continue to operate in accordance with the terms and conditions of this permit beyond the expiration date, provided that a complete renewal application is submitted to the District no earlier than twelve (12) months and no later than ninety (90) days prior to the expiration date.

Emission limitations to qualify for non-major status:

Pollutant:	VOC	Total HAP	Single HAP
Tons/year:	< 15 tpy	< 10 tpy	< 5 tpy

Application No. 23304
 58233

Application Received: 2/14/2008
 8/5/2013

Permit Writer: Dustin Gohs

Public Notice Date: 12/6/2014

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Air Pollution Control Officer
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Permit Revisions/Changes

Revision No.	Public Comment Date	Issue Date	Type	Page No.	Description
Initial	12/06/2014		FEDOOP	All	Initial FEDOOP Issuance

Acronyms and Abbreviations

AP-42	- AP-42, Compilation of Air Pollutant Emission Factors, published by USEPA
APCD	- Louisville Metro Air Pollution Control District
BAC	- Background Ambient Concentration
BACT	- Best Available Control Technology
Btu	- British thermal unit
CEMS	- Continuous Emission Monitoring System
CFR	- Code of Federal Regulations
CO	- Carbon monoxide
District	- Louisville Metro Air Pollution Control District
EA	- Environmental Acceptability
FEDOOP	- Federally Enforceable, District Origin Operating Permit
gal	- U.S. fluid gallons
GHG	- Greenhouse Gas
HAP	- Hazardous Air Pollutant
HCl	- Hydrogen chloride
Hg	- Mercury
hr	- hour
in.	- inches
lbs	- pounds
l	- liter
LMAPCD	- Louisville Metro Air Pollution Control District
mm _{Hg}	- millimeters of mercury column height
MM	- million
NAICS	- North American Industry Classification System
NO _x	- Nitrogen oxides
PM	- Particulate Matter
PM ₁₀	- Particulate Matter less than 10 microns
PM _{2.5}	- Particulate Matter less than 2.5 microns
ppm	- parts per million
PSD	- Prevention of Significant Deterioration
psia	- pounds per square inch absolute
QA	- Quality Assurance
SIC	- Standard Industrial Classification
SIP	- State Implementation Plan
SO ₂	- Sulfur dioxide
STAR	- Strategic Toxic Air Reduction
TAC	- Toxic Air Contaminant
UTM	- Universal Transverse Mercator
VOC	- Volatile Organic Compound
w.c.	- water column
year	- any period of twelve consecutive months, unless "calendar year" is specified
yr	- year, or any 12 consecutive-month period, as determined by context

Preamble

This permit covers only the provisions of Kentucky Revised Statutes Chapter 77 Air Pollution Control, the regulations of the Louisville Metro Air Pollution Control District (District) and, where appropriate, certain federal regulations. The issuance of this permit does not exempt any owner or operator to whom it has been issued from prosecution on account of the emission or issuance of any air contaminant caused or permitted by such owner or operator in violation of any of the provisions of KRS 77 or District regulations. Any permit shall be considered invalid if timely payment of applicable fees is not made after receipt of the statement of fees (SOF). The permit contains general permit conditions and specific permit conditions. General conditions are applicable unless a more stringent requirement is specified elsewhere in the permit.

General Conditions

1. The owner or operator shall comply with all General Conditions herein and all terms and conditions in the referenced process/process equipment list.
2. All terms and conditions in this FEDOOP are enforceable by EPA, except those terms and conditions specified as District-only enforceable, and those which are not required pursuant to the Clean Air Act Amendments of 1990 (CAAA) or any of the Act's applicable requirements.
3. All application forms, reports, compliance certifications, and other relevant information submitted to the District shall be certified by a responsible official. If a change in the responsible official (RO) occurs during the term of this permit, or if an RO is added, the owner or operator shall provide written notification (Form AP-100A) to the District within 30 calendar days of such change or addition.
4. The owner or operator shall submit an annual compliance certification, signed by the responsible official, to the District, on or before April 15 of the year following the year for which the certification applies. This certification shall include completion of District Form 9440-0.
5. Periodic testing, instrumental monitoring, or non-instrumental monitoring, which may include record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstrating continuing compliance with the terms and conditions of this permit.
6. The owner or operator shall retain all records required by the District or any applicable requirement, including all required monitoring data and supporting information, for a period of five years from the date of the monitoring, sampling, measurement, report, or application, unless a longer time period for record retention is required by the District or an applicable requirement. Records shall be retrievable within a reasonable time and made available to the District, Kentucky Division for Air Quality, or the EPA upon request.
7. The owner or operator shall provide written notification to the District, and receive approval, prior to making any changes to equipment or processes that would result in emissions of any regulated pollutant in excess of the allowable emissions specified in this permit.
8. This permit may be reissued, revised, reopened, or revoked pursuant to District Regulation 2.17. Repeated violations of permit conditions are sufficient cause for revocation of this permit. The filing of a request by the owner or operator for any reissuance, revision, revocation, termination, or a notification of planned changes in equipment or processes, or an anticipated noncompliance shall not alter any permit requirement.
9. Except as otherwise specified or limited herein, the owner or operator shall not allow or cause the emissions to equal or exceed either 10 tons per year, or such lesser quantity as the EPA has established by rule, of any one Hazardous Air Pollutant (HAP) or 25 tons per year of all HAPs combined. Fugitive HAP emissions shall be included in this limit. HAPs are listed in Section 112(b) of the CAAA and as amended in 40 CFR 63, Subpart C.
10. Except as otherwise specified or limited herein, the owner or operator shall not allow or cause the emissions to equal or exceed 100 tons per year of any regulated pollutant, including particulate matter, sulfur dioxide, carbon monoxide, photochemical oxidants, hydrocarbons, nitrogen oxides, lead, gaseous fluorides, or Volatile Organic Compounds (VOC) as listed in District Regulation 3.04; any pollutant subject to any standard in District Regulation 7.02; any substance listed in sections 112(r), 602(a) and 602(b) of the CAAA; or any combination of greenhouse gasses whose combined global warming potential equals or exceeds 100,000 tons CO₂-equivalent, as defined in 40 CFR 98 (except that prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include biogenic carbon dioxide emissions defined in 40 CFR 52.21(b)(49)(ii)(a)).

Fugitive emissions shall be included in these limits for source categories listed in District Regulation 2.16.

11. Unless specified elsewhere in this permit, the owner or operator shall complete required monthly record keeping within 30 days following the end of each calendar month.
12. Unless specified elsewhere in this permit, the owner or operator shall submit annual reports demonstrating compliance with the emission limitations specified. The report shall contain monthly and consecutive 12-month totals for each pollutant that has a federally enforceable limitation on the potential to emit. All reports shall include the company name, plant ID number, and the beginning and ending date of the reporting period. The compliance reports shall clearly identify any deviation from a permit requirement or a declaration that there were no such deviations. All annual compliance reports shall include the statement "Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this document are true, accurate, and complete" and the signature and title of a responsible official of the company. The report must be postmarked no later than March 1 of the year following the calendar year covered in the annual report.
13. The owner or operator shall comply with all applicable requirements of the following federally enforceable District Regulations:

Regulation	Title
1.01	General Application of Regulations and Standards
1.02	Definitions
1.03	Abbreviations and Acronyms
1.04	Performance Tests
1.05	Compliance with Emissions Standards and Maintenance Requirements
1.06	Source Self-Monitoring, Emissions Inventory Development and Reporting
1.07	Excess Emissions During Startups, Shutdowns, and Upset Conditions
1.08	Administrative Procedures
1.09	Prohibition of Air Pollution
1.10	Circumvention
1.11	Control of Open Burning
1.14	Control of Fugitive Particulate Emissions
2.01	General Application (Permit Requirements)
2.02	Air Pollution Regulation Requirements and Exemptions
2.03	Permit Requirements - Non-Title V Construction and Operating Permits and Demolition/Renovation Permits
2.07	Public Notification for Title V, PSD, and Offset Permits; SIP Revisions; and Use of Emission Reduction Credits
2.09	Causes for Permit Modification, Revocation, or Suspension
2.10	Stack Height Considerations
2.11	Air Quality Model Usage
2.17	Federally Enforceable District Origin Operating Permits
4.01	General Provisions for Emergency Episodes
4.02	Episode Criteria
4.03	General Abatement Requirements
4.07	Episode Reporting Requirements
6.01	General Provisions (Existing Affected Facilities)
6.02	Emission Monitoring for Existing Sources
7.01	General Provisions (New Affected Facilities)

14. The owner or operator shall comply with all applicable requirements of the following District-only enforceable regulations:

Regulation	Title
1.12	Control of Nuisances
1.13	Control of Objectionable Odors in the Ambient Air
2.08	Fees
5.00	Definitions
5.01	General Provisions
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants
5.20	Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant
5.21	Environmental Acceptability for Toxic Air Contaminants
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant
5.23	Categories of Toxic Air Contaminants
7.02	Adoption of Federal New Source Performance Standards

15. The owner or operator shall submit emission inventory reports, as required by Regulation 1.06, if so notified by the District.
16. The owner or operator shall submit timely reports of abnormal conditions or operational changes that may cause excess emissions, as required by Regulation 1.07.
17. Applications, reports, test data, monitoring data, compliance certifications, and any other document required by this permit shall be submitted to:

***Air Pollution Control District
Room 205
850 Barret Ave
Louisville, KY 40204-1745***

Emission Unit U1¹**U1 Unit Description: Presses and Coaters**

One (1) 4-color Komori sheet-fed offset lithographic press, model LS440P

Two (2) 8-color Komori sheet-fed offset lithographic presses, model LS840P

One (1) 10-color Komori sheet-fed lithographic press, model 1040P

One (1) 8-color Komori sheet-fed lithographic press, model 828

One (1) Steineman UV coater, model GLM102

One (1) Man Roland sheet-fed UV press

Two (2) Sakurai UV coaters, model SC102DX

One (1) Apollo atmospheric evaporator, rated at 20 gallons/hour, used for reducing waste water disposal

One (1) indoor baghouse used to control emissions from the corn starch used as part of the printing operations

U1 Applicable Regulations

Regulation	Title	Applicable Sections
2.03	Permit Requirements – Non-Title V Construction and Operating Permits and Demolition/Renovation Permits	All
2.17	Federally Enforceable District Origin Operating Permits	All
7.08	Standards of Performance for New Process Operations	1 – 3
7.25	Standard of Performance for New Sources Using Volatile Organic Compounds	All

¹ This permit replaces construction permits 607-07-C, 460-08-C, and 81-10-C.

U1 Equipment

Emission Point ID	Description Make/Model	Maximum Capacity	Applicable Regulation	Control Device (Control ID)	Stack ID	Application Date
E1	4-color Komori/LS440P	15,000 sheets/hr	2.03, 2.17, 7.08, 7.25	C1, C2	N/A	2/14/2008
E2	8-color Komori/LS840P	15,000 sheets/hr	2.03, 2.17, 7.08, 7.25	C1, C2	N/A	2/14/2008
E3	8-color Komori/LS840P	15,000 sheets/hr	2.03, 2.17, 7.08, 7.25	C1, C2	N/A	2/14/2008
E5	10-color Komori/1040P	11,500 sheets/hr	2.03, 2.17, 7.08, 7.25	C1, C2	N/A	10/23/2007
E6	8-color Komori/828	11,000 sheets/hr	2.03, 2.17, 7.08, 7.25	C1, C2	N/A	10/23/2007
E7	Steinman UV/GLM102	8,000 sheets/hr	2.03, 2.17, 7.25	C1	N/A	2/14/2008
E8	Man Roland UV	5,000 sheets/hr	2.03, 2.17, 7.25	C1	N/A	10/23/2007
E9	Sakurai UV/SC102DX	3,100 sheets/hr	2.03, 2.17, 7.25	C1	N/A	10/23/2007
E10	Sakurai UV/SC102DX	3,100 sheets/hr	2.03, 2.17, 7.25	C1	N/A	5/26/2010

U1 Controls

Control ID	Description	Make/Model	Maximum Capacity	Pollutant Controlled	Application Date
C1	Atmospheric Evaporator	Apollo	20 GPH	VOC	6/27/2008
C2	Baghouse	N/A	4,300 cfm	PM, PM ₁₀ , PM _{2.5}	11/6/2013

U1 Specific Conditions

S1. Standards (Regulation 2.17, section 5.2)

a. VOC

- i. The owner or operator shall not allow or cause the VOC emissions from this equipment to exceed 15 tons during any consecutive 12-month period. (Regulation 7.25, section 3) (BACT)²
- ii. The District has determined that compliance with the following VOC requirements represent Best Available Control Technology (BACT).³

Raw Material	BACT Limit
Conventional Inks ⁴	18% by weight VOC
Specialty Inks (including, but are not limited to, metallic, magnetic, fluorescent, and iridescent inks)	25% by weight VOC 10% of total ink usage
Fountain Solution	Non-Vinyl: 5% by weight VOC as applied; or 8.5% by weight if Chilled Fountain Solution at 60°F max.; Vinyl or Plastic Sheets: 10% by weight as applied
Blanket Wash	25% by weight VOC as applied or vapor pressure \leq 5 mm Hg at 68°F
Roller Wash	25% by weight VOC as applied or vapor pressure \leq 5 mm Hg @ 68°F
Water-based Coatings (Aqueous)	1.0 lb VOC/gal as applied

(Regulation 2.03, section 5.1) (Regulation 7.25, section 3) (BACT)

² The 15 ton per year limit includes emissions from the usage of raw materials listed in Specific Condition S1.a.ii as well as any other raw materials containing VOC which are not listed. These materials include but are not limited to: plate developer, coatings that are part of the inks, plate gum, blanket fix, silicon spray, and SMK-OD etching solution.

³ The District has determined that the use of raw materials that comply with the emission standards in Specific Condition S1.a.ii represents BACT level of control for the presses and coaters.

⁴ Per EPA guidance document for Lithographic Printing and Letterpress Printing dated September 2006, the document defines varnishes as un-pigmented offset lithography inks, and therefore are to be included in the conventional ink category.

- iii. If the fountain solution is chilled, the owner or operator shall maintain the temperature at or below 60°F for each fountain solution reservoir. (Regulation 7.25, section 3) (BACT)
- iv. The owner or operator shall use the least amount of VOC containing materials needed for the job. (Regulation 7.25, section 3) (BACT)
- v. The owner or operator shall store all VOC containing materials in closed containers when not in use. This includes materials such as inks, solvents, fountain solution, press cleaning materials, and waste materials including rags/wipes/paper used to clean press components. (Regulation 7.25, section 3) (BACT)
- vi. The owner or operator shall clean up all spills of any VOC containing materials no matter how small of a spill. If the spill is significant (i.e. more than one gallon), the owner or operator shall notify maintenance or professionals for assistance. (Regulation 7.25, section 3) (BACT)

b. **HAP**

- i. The owner or operator shall not allow or cause to allow the *plant-wide* emissions of any individual HAP to equal or exceed 5 tons during any consecutive 12-month period. (Regulation 2.17, section 5.1)
- ii. The owner or operator shall not allow or cause to allow the *plant-wide* emissions of all HAPs combined to exceed 10 tons during any consecutive 12-month period. (Regulation 2.17, section 5.1)

c. **PM**

The owner or operator shall not allow PM emissions from each individual printing press to exceed 2.34 lb/hr. (Regulation 7.08, 3.1.2)⁵

d. **Opacity**

The owner or operator shall not allow visible emissions to equal or exceed 20% opacity. (Regulation 7.08, section 3.1.1)⁶

⁵ A one-time PM compliance demonstration has been performed for each piece of equipment in this emission unit and the lb/hr standard cannot be exceeded uncontrolled. Therefore, there are no monitoring, record keeping, or reporting requirements with respect to the PM lb/hr emission limits.

⁶ The District has determined that, based on the potential emissions, the equipment in this emission unit will not exceed 20% opacity. Therefore, there are no monitoring, record keeping, or reporting requirements for this equipment with respect to opacity.

S2. Monitoring and Record Keeping (Regulation 2.17, section 5.2)⁷

The owner or operator shall maintain the required records for a minimum of five (5) years and make the records readily available to the District upon request.

a. VOC

- i. The owner or operator shall maintain monthly records of the name, quantity used, and VOC content for each of the following raw materials: inks, fountain solution concentrate, fountain solution additive, blanket wash, roller wash, press cleaning materials, or any other VOC containing material used during each calendar month.
- ii. In order to demonstrate compliance with Specific Condition S1.a.i., the owner or operator shall, monthly, calculate and record the total monthly VOC emissions as well as the consecutive 12-month rolling total VOC emissions for all VOC containing materials combined.⁸
- iii. To demonstrate compliance with Specific Condition S1.a.ii., the owner or operator shall maintain monthly records that show the quantity (in pounds) of specialty inks used during each calendar month and calculate the percentage of the total inks used that are classified as specialty inks as determined on a consecutive 12-month basis.
- iv. The owner or operator shall maintain a copy of the material safety data sheets (MSDS) for each VOC containing material used at this plant.
- v. The owner or operator shall determine the VOC content (as applied) of each batch of press-ready fountain solution by one of the following methods:
 - 1) The owner or operator shall determine the VOC content of each batch of press-ready fountain solution by calculation. The calculation shall be kept in a batch log. The owner or operator shall document any deviation from the standard fountain solution makeup. Any manual additions of VOC made after each fountain solution batch is prepared shall be documented and the VOC content of the fountain solution shall be calculated to demonstrate compliance with the as applied fountain solution standard specified in Specific Condition S1.a.ii. Documentation of any deviations or manual additions shall include the date and time of occurrence.

⁷ Appendix A contains a summary of the compliance monitoring and record keeping requirements necessary to reasonably assure compliance with the District regulations and the terms of this permit.

⁸ For VOC calculation methods, see Appendix B.

- 2) Alternatively, a sample of the fountain solution (as applied) may be taken from the fountain solution tray or reservoir and measured with a hydrometer, refractometer, or conductivity meter. Within 30 days after the effective date of this permit, the owner or operator shall establish the appropriate compliance indicator ranges for each of the analytical methods above that the source will use to demonstrate compliance with the fountain solution VOC content (as applied). Upon District approval of the established compliance indicator ranges, the owner or operator shall analyze the VOC content of each fresh batch of press ready fountain solution as prepared and after each addition of a VOC containing material to the fountain solution reservoir made following a fresh batch of fountain solution prepared. The owner or operator shall maintain daily records of the results of each observed reading including the date, time, and the name of the person who observed the reading.
- vi. The owner or operator of a lithographic press using automatic cleaning equipment (e.g. blanket washers) that mixes the cleaning solution at the point of application, and who must demonstrate the cleaning solution (as applied) complies with Specific Condition S1.a.ii., shall:
 - 1) Operate, maintain, and calibrate the automatic feed equipment to regulate the volume of each cleaning solvent and water (or other non-VOC), as mixed; and
 - 2) Preset the automatic feed equipment so that the consumption rates of the cleaning solvents and water (or other non-VOC), as-applied, comply with Specific Condition S1.a.ii.
 - vii. For each batch of blanket wash, roller wash, or other cleaning solution not prepared with automatic equipment, the VOC content of the cleaning solution (as applied) shall be determined by calculation. The calculation shall be kept in a batch log. The owner or operator shall document any additions of VOC or deviation from the standard cleaning solution makeup including the date and time of occurrence.
 - viii. To demonstrate compliance with the fountain solution temperature requirements in Specific Condition S1.a.iii., the owner or operator shall use a thermometer or other temperature detection device capable of reading to within 2.0 degrees to measure and record the temperature of each fountain solution reservoir once per day for each operating day and keep daily records of the temperature.

b. HAP

- i. The owner or operator shall maintain monthly records of the name, quantity, and HAP content for each HAP containing material used during each calendar month and consecutive 12-month period.
- ii. In order to demonstrate compliance with Specific Condition S1.b.i., the owner or operator shall, monthly, calculate and record the total monthly individual HAP emissions as well as the consecutive 12-month rolling total individual HAP emissions for each individual HAP.
- iii. In order to demonstrate compliance with Specific Condition S1.b.ii., the owner or operator shall, monthly, calculate and record the total monthly HAP emissions as well as the consecutive 12-month rolling total HAP emissions for all HAP containing products combined.
- iv. The owner or operator shall maintain a copy of the material safety data sheets (MSDS) for each HAP containing material used at this plant.

c. PM

There are no monitoring or record keeping requirements for this equipment for PM.

d. Opacity

There are no monitoring or record keeping requirements for this equipment for Opacity.

S3. Reporting (Regulation 2.17, section 5.2)

The owner or operator shall submit annual compliance reports that include the information in this section. All reports shall include the company name, plant ID number, and the beginning and ending date of the reporting period. The compliance reports shall clearly identify any deviation from a permit requirement. The compliance reports shall be postmarked within 60 days following the end of each reporting period. All compliance reports shall include the following certification statement per Regulation 2.17, section 3.5

- “Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this document are true, accurate, and complete”.
- Signature and title of the responsible official of the company.

The compliance reports are due on or before the following dates of each calendar year:

<u>Reporting Period</u>	<u>Report Due Date</u>
January 1 st through December 31 st	March 1 st

a. **VOC**

- i. The monthly and 12 consecutive month rolling totals of calculated VOC emissions for each month during the reporting period.
- ii. Identification and brief description of any deviation from a permit term or condition, including periods of excess emissions. If there are no deviations from a permit condition or excess emissions during a given reporting period, the owner or operator shall submit a negative declaration stating no permit deviations or excess emissions occurred during the reporting period.⁹

b. **HAP**

- i. The monthly and 12 consecutive month rolling totals of calculated individual HAP emissions for each month during the reporting period.
- ii. The monthly and 12 consecutive month rolling totals of calculated total HAP emissions for each month during the reporting period.

c. **PM**

There are no reporting requirements for this equipment for PM.

d. **Opacity**

There are no reporting requirements for this equipment for Opacity.

Source-wide Comment

On August 5, 2013, the District received a permit application from Coral Graphics requesting limits of 25 tons per year for criteria pollutants, 10 tons per year of total HAP emissions, and 5 tons per year of an individual HAP. By requesting these limits and operating the equipment according to the standards of this permit in order to demonstrate compliance with the limits, the facility is not subject to the STAR program.

FEDOOP Fee Comment

In accordance with the *Schedule of Fees* table for Fiscal Year 2015, pursuant to Regulation 2.08, the initial issuance fee for a FEDOOP is \$2,542.40. This fee shall be paid to the District prior to the issuance of this permit.

⁹ Permit deviations include, but are not limited to, raw material usages that exceed the requirements as stated in Specific Condition S1.a.ii.

Appendix A – Compliance Monitoring Summary

The following table summarizes the compliance monitoring methods to reasonably assure compliance with District regulations and the terms and conditions of this permit:

Pollutant	Monitoring	Record Keeping	Frequency
VOC	Raw material usage	Record the monthly usage of each VOC containing material	Monthly
	Emissions	Calculate and record the calendar month and rolling 12-month total VOC emissions	Monthly
	Fountain solution temperature	Record the temperature of each fountain solution reservoir	Daily
	Fountain solution VOC content	See Specific Condition S2.a.v.	As required
	Raw material VOC content	Maintain a copy of the MSDS for each VOC containing material used	Continuous
HAP	Raw material usage	Record the calendar month usage of each HAP containing material	Monthly
	Emissions	Calculate and record the calendar month and rolling 12-month total HAP emissions	Monthly
	Raw material HAP content	Maintain a copy of the MSDS for each HAP containing material used	Continuous

Appendix B – Calculation Methods

The VOC emissions from the presses and coaters can be calculated according to the following methodology:

Off-Set Lithography Sheet-Fed Presses

$$E_{VOC} = (I_{VOC})(I_{Ret}) + (FS_{VOC}) + (BW_{VOC}) + (RW_{VOC}) + (C_{VOC}) + (CS_{VOC})(R)$$

Where,

E_{VOC}	=	lb VOC Emissions
I_{VOC}	=	lb of sheet-fed ink used × weight % VOC in each ink
I_{Ret}	=	0.050 (Derived from: 1 - Ink oil retention factor of 0.95 for non-heatset inks)
FS_{VOC}	=	Qty of fountain solution used (gallons) × VOC content of fountain solution as applied (lb/gal)
BW_{VOC}	=	Qty of blanket wash used (gallons) × VOC content of blanket wash as applied (lb/gal)
RW_{VOC}	=	Qty of roller wash used (gallons) × VOC content of roller wash as applied (lb/gal)
C_{VOC}	=	Qty of coatings used (gallons) × VOC content of coating as applied (lb/gal)
CS_{VOC}	=	Qty of each cleanup solvent used (gallons) × VOC content as applied (lb/gal)
R	=	1.0 or 0.50 (Fraction of cleanup solvent unrecovered)

An “R” factor of 0.50 (50 percent VOC credit) may be used for solvents (vapor pressure \leq 5 mm Hg at 68°F) used to manually clean press components if the rags/wipes used to manually clean press components are stored in closed/sealed containers immediately after use and the company can document the quantity of solvent recovered.